The Feasibility of Content Sharing With (Dtn) On Commercial Smart Phones

K.Aparna 1, M Jyothi 2

1Final Year M Tech Student, Dept. of Computer Science Engineering, Kakinada Institute of Engineering & Technology for womens, Korangi -533461, E.G.Dt., A.P.
2Assistant Professor, Dept. of Computer Science Engineering, Kakinada Institute of Engineering & Technology for womens, Korangi -533461, E.G.Dt., A.P.

ABSTRACT: The increase in the number of smartphone users has lead to the increase in the peer-to-peer adhoc content sharing. Traditional data delivery schemes are not suitable for such networks due to intermittent connectivity between smart phones. Thus new content sharing mechanisms should be proposed. To share the contents in such a scenario, researchers have proposed store-carry-forward as an efficient content sharing scheme with efficient a client-based cache consistency scheme that is implemented for caching data items. where a node stores a message and carries it for certain duration until a communication opportunity arises and then delivers it to the destination. Previous works in this field focused on whether two nodes would encounter each other and the place and time of encounter and did not consider the activities of malicious peers. This paper proposes discover-predict-deliver as an efficient content sharing scheme where special nodes cache the queries and the addresses of the nodes that store the responses to these queries that enable peers to share contents.

KEYWORDS: Store and forward networks, wireless communication, location dependent and sensitive, pervasive computing.

INTRODUCTION:

Delay-Tolerant Network (DTN) routing protocols attain better presentation than traditional mobile ad hoc network(MANET) routing protocols. The benefit of both DTN and MANET routing protocols is the nonexistence of the requirement of a central server. Consequently contents are dispersed and stored directly on the smart phones. With the rising number of Smartphone users peer-to-peer ad hoc content sharing is expected to happen more often. Thus new content sharing mechanisms should be developed as traditional data delivery schemes are not competent for content sharing due to the irregular connectivity between smart phones. To achieve data delivery in such challenging environments researchers have proposed the use of store-carry-forward protocols in which a node stores a message and carries it until forwarding opportunity arises throughout an encounter with other nodes. Most previous works in this field have focused on the forecast of whether two nodes would encounter each other without allowing for the place and time of the encounter. In this paper we propose discover-predict-deliver as an efficient content sharing scheme for delay-tolerant Smartphone networks. In our proposed scheme contents are shared using the mobility information of individuals. Particularly our approach utilizes a mobility learning algorithm to recognize places indoors and outdoors.

RELATED WORK:

Epidemic routing is an essential DTN routing solution. In Epidemic routing messages are forwarded to every encountered node that does not have a copy of the same message. This solution exhibits the best performance in terms of delivery rate and latency but it requires ample resources such as storage, bandwidth and energy. The works which are proposed following Epidemic routing are classified into three categories resource based, opportunity based and prediction based. In the first group systems employ data mules as message carries that directly distribute messages to destinations. Opportunity based routing protocols use spontaneous and random encounter opportunities to exchange messages. Content sharing over Smartphone based DTNs is related to two problems as content discovery and delivery and mobility learning and prediction. The former problem is related to DTN routing and has vigorously been studied over the years. The latter issue is also widely addressed in the literature but their performance remains a challenge.
EXISTING METHOD:

content sharing remains troublesome. It requires several user actions, such as registration, uploading to central servers, and searching and downloading contents whereas the content sharing mechanism first discovers content before delivering it to the destination. This two-step operation is challenging due to the absence of central servers. In searching for contents, previous works used two approaches: flooding and random walk. Most flooding-based schemes use a time-to-live-based limit to control the spread of the search queries. By contrast, search schemes based on random walks avoid the massive spread of messages that flooding creates but still achieve reliability using probabilistic paths to reach the responder.

DISADVANTAGES:

1) Lack of proper content caching.
2) Resource consumption is high.
3) Content delivery delay is high.

PROPOSED METHOD:

The goal of our work is to explore the solutions to the content sharing and caching problem in smartphone-based DTNs. These solutions are the efficient discovery of contents and their delivery to the proper destinations within a given time. Whereas Pull-based approaches are client-based, where the client asks the server to update or validate its cached data, where a TTL value is stored alongside each data item in the cache, and d is considered valid until T time units go by since the last update. Such algorithms are popular due to their simplicity, sufficiently good performance, and flexibility to assign TTL values to individual data items.

ADVANTAGES:

1) Efficient Content caching in mobile hosts.
2) Minimized content delivery delays.
3) Resource consumption is low.

PROCESSING OF INCOMING QUERY:

DYNAMIC NEIGHBOR DISCOVERY:

Neighbour discovery is a significant task for routing protocols. Particularly in delay-tolerant networking, efficient neighbour discovery considerably improves the performance of the routing protocols. Though most protocols authenticated with simulations do not address this issue as these protocols assume that nodes always perceive neighbours with recurrent hello messages. In real implementations frequent hello messages are not adequate due to high energy consumption. In dynamic neighbour discovery each mobile device can be in one of three modes: idle (discoverable) mode, search mode, or aggressive search mode. When an application does not have any queries or content to forward the device is in discoverable mode and does not broadcast intercritical hello messages. When an application has a query or content to forward and did not programme encounters by prediction the device periodically searches neighbours according to the given query. In case neighbour devices are not discovered the device continuously augments the discovery interval up to 10 times of the initial discovery interval.

MOVEMENT TRACKING:

In Life Map the Activity Manager checks the stepping up vector of a three-axis accelerometer and detects the motion of the user. The movement detector function of the Activity Manager is essentially a classifier M that has two outputs: moving or stationary. When the user is walking, running, or moving in a vehicle the motion is classified as moving whereas when the user stays at a certain location the motion is classified as stationary.

MOBILITY LEARNING:

In daily life people typically visit a number of places but not all of these are meaningful for learning people’s mobility. Indeed DPD requires the detection of locations where content sharing can be performed. Content sharing is productively performed in places where Smartphone users stay long enough as
perceiving the existence of other nodes and message swapping requires several minutes depending on the size of the message the bandwidth and the network interface. Hence we are basically interested in discovering places where the user stays longer than certain duration i.e. meaningful places and the context in user movement.

DISCOVERING AND LEARNING MEANINGFUL PLACES:

Currently obtainable location technologies focus on providing geographical information. This information is inadequate to discover meaningful places because the physical location is not precisely generated at the same place in spite of the fact that a user usually has a comparable life pattern every day. In addition this information cannot differentiate a place that has a similar geocode but different floors. In modern society places are usually located in multiple floor buildings. Thus the logical information of significant places has more advantage to the proposed scheme as content sharing is conducted in indoor environments.

MOBILITY PREDICTION:

As DPD uses location information to approximation if a node approaches the destination of the content or deviate from the destination the prediction of nodes’ mobility information is necessary.

ALGORITHM USED:

Caching Mecanism:

1) upon receiving a message M, the node tries to forward to every connection. If a connection is established and M is forwarded via that connection, M’s source ID, destination ID is cached as a record (entry) in the cache table.

2) that connection's other end node ID is also stored as next hop in the same record. Additionally, that record's flag is set as NULL as this route is not cross checked by a returning message. Therefore, this caches information is not usable yet.

3) how route information is cached when a message is traversed through this concerning node for the first time. For every message M, the corresponding node also checks whether M's destination ID and any cached record's considered as a returning message. In this case, cached record's next hop is set with M's previous hop ID and record's flag is set as OK.

4) It shows this cache table update process when destination node is sending a returning message to the source node. Typically, such returning message can be an acknowledgment message.

5) Upon receiving every message the corresponding node also looks up the cache table to find a match of M's destination ID and a cached record having same destination ID. If there is a match, this message is considered as a consecutive message

6) If such match is found and corresponding record's flag is marked as OK, messages M's next hop field is set with the corresponding record's next hop ID. This is possible because previous traversal of message is cached in the cache table as mentioned previously.

7) This cache table based forwarding of M. While a message M is forwarded, the node follows routing protocol use limited flooding by fixing initial number of copies of M.

8) Whenever M is forwarded, this number of copies is divided by 2 - receiver gets half and sender keeps half

9) So, numbers of copies are decreased if next node is a mobile node Otherwise, M is forwarded with number of copies value same.

EXPERIMENTAL RESULTS:

The sharing latency is the addition of the discovery latency and the delivery latency. E-E shows the lowest latency and both DPD and E-S&W show the highest latency. DPD display such results due to the high latency of the discovery phase. Though the delivery latency of DPD is much lesser than that of E-S&W and is close up to that of E-E. E-E shows the highest overhead. The latency and overhead are tradeoffs. In synopsis DPD achieves good efficiency in the delivery phase whereas the competence of the discovery phase can be improved. Content header caching on all nodes may be a good solution and this subject will be addressed in future works. Note that we focus on the sharing of generic contents. Thus if the content size is very large and the delivery cost is more significant than the delivery
CONCLUSION:

We effort to make use of the advantages of today’s smart phones i.e. availability of various localization and communication technologies and suitably designed the protocol. In designing a content sharing algorithm we focused on two points people move around meaningful places and the mobility of people is predictable. Based on this proposition we developed a mobility learning and prediction algorithm to calculate the utility function. Thus, in contrast to conventional methods the proposed sharing mechanism does not necessitate contact history. We learned that contents indeed have geographical and temporal validity and we proposed a method by considering these characteristics of content.

REFERENCES:


About the Authors:

Jyothi Musireddy, received B.Tech in Information Technology from JNTU Kakinada and M.Tech. (CS) from JNTU Kakinada is working as Assistant Professor in Department of Computer Science Engineering, Kakinada Institute of Engineering and Technology, Korangi. She has 5 years of Teaching experience. Her area of interest includes Cloud Computing, and other advances in Computer Applications.

Kanchimenu Aparna is a Post Graduate student of Kakinada Institute of Engineering & Technology, Korangi. Presently she is pursuing his M.Tech. (CSE) from this college and she received her B.Tech in Information technology from VSL, engineering college for women.